

# AN IMPAIRMENT SENSITIVE SELECTION OF CONSTELLATION POINTS FOR COMMUNICATION ACROSS A CHANNEL

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## ABSTRACT OF THE DISCLOSURE

5           An impairment compensation sequence for use in a communications system  
susceptible to one or more potential impairments each periodic in an integer number  
of symbols includes N phases, wherein N is selected such that each potential  
impairment, if present, is periodic therein, and a sequence of symbols, the sequence  
organized to place at least one instance of each symbol from a predetermined set of  
10   symbols in each phase to allow detection of the potential impairments in each of the N  
phases. The potential impairments may include robbed-bit signaling and padding.  
Using estimates prepared based on such an impairment compensation sequence,  
individual phase intervals may be grouped according to similarity of apparent  
aggregate effect of the impairments thereon without identification of individual  
15   impairments active in the particular phases. Constellation points may then be  
assigned based on group characteristics corresponding to phase intervals. In an  
exemplary realization, constellation points are assigned for each of 6 constellation  
indices based on amplitude estimates characteristic of the groups with which each of 4  
corresponding phase intervals are associated.